

PROCESS FOR MAKING ANGSTROM SCALE AND
HIGH ASPECT FUNCTIONAL PLATELETS

ABSTRACT OF THE DISCLOSURE

A process for making functional or decorative flakes or platelets economically and at high production rates comprises applying a multi-layer sandwich of vapor deposited metal and release coats in alternating layers to a rotating chilled drum or suitable carrier medium contained in a vapor deposition chamber. The alternating metallized layers are applied by vapor deposition and the intervening release layers are preferably solvent soluble thermoplastic polymeric materials applied by vapor deposition sources contained in the vapor deposition chamber. The multi-layer sandwich built up in the vacuum chamber is removed from the drum or carrier and treated with a suitable organic solvent to dissolve the release coating from the metal in a stripping process that leaves the metal flakes essentially release coat free. The solvent and dissolved release material are then removed by centrifuging to produce a cake of concentrated flakes which can be air milled and let down in a preferred vehicle and further sized and homogenized for final use in inks, paints or coatings. In one embodiment the finished flakes comprise single-layer thin metal or metal alloy flakes or flakes of inorganic materials, and in another embodiment flakes are coated on both sides with protective polymeric coatings that were applied from suitable vacuum deposition sources or the like contained in the vapor deposition chamber.

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